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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09/803,126	03/09/2001	Alan R. Brooks	15303-000310	8941

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EXAMINER
LIU, SAMUEL W

ART UNIT	PAPER NUMBER
2653	15

DATE MAILED: 03/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/803,126	BROOKS ET AL.	
	Examiner	Art Unit	
	Samuel W Liu	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2001 and 24 December 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) *12-39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *9 and 11* .
4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other:

DTAILED ACTION

Applicants' preliminary amendment filed 13 August 2001 (Paper No. 4) and request for the extension for one month (Paper No. 6) and petition for extension of additional one month (Paper No. 13) have been entered. Applicants' claim for the benefit of U.S. provisional Application No.60/188488 has been acknowledged. Also, Applicant's IDS, filed 17 September 2001 (Per No. 9) and filed 15 February 2002 (Paper No. 11) are acknowledged.

Election/Restrictions

Applicant's election of Group I, claims 1-11 filed 24 December 2002 with traverse (Paper No. 14) is acknowledged. The Traversal is on the ground that it would not be an undue burden on the examiner. This is not found persuasive because each of the group was set forth properly and shown different classifications, art areas and recognized divergent subject matter that was clearly stated. It would require a serious and undue burden on the examiner to have searched the additional groups together.

The pending claims 12 –39 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected inventions. Claims 1-11 are examined in this Office action.

Objection to Specification

The disclosure is objected to because of the following informalities:

In page 1, line 17, the term "ERα" and "ERβ" should be spelled out for the first instance of use. See also page 2, line 7, "SH3'; page 6, line 24, "RT-PCR" and page 61, line 22, "RACE".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, because the specification, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification while being enabling for the claimed polynucleotides that encode estrogen-regulated unconventional myosin-related proteins (MRP), does not reasonably provide enablement for all polynucleotide variants that encompass numerous fragments set forth by the claimed languages, for example "at least about 70% identical" or "at least 70% similar to" the full-length nucleotide sequences, e.g., SEQ ID NOs: 2 and 5, and "said hybridizes under stringent wash conditions to a nucleic acid...".

Applicant is in possession of nucleic acid molecule of the full-length polynucleotide SEQ ID NOs: 2, 5 and 7 which encode the polypeptide SEQ ID NOs: 1, 4 and 6, respectively. Applicant is not in possession of any isolated nucleic acid molecule encoding the polypeptides SEQ ID NOs: 1, 4 and 6 in the claims 1-2, 4-5 and 7-8; any isolated nucleic acid molecules wherein the amino acid sequences are encoded by nucleotide sequences that are at least about 70% identical or similar to the full-length polynucleotides SEQ IDE NOs: 2, 3, 5 and 7; any isolated polynucleotide which hybridizes under stringent conditions to the complement of polynucleotide encoding SEQ ID NO: 1 or 4 or 6; or any nucleic acid molecule comprising a

nucleotide sequence which is complementary to the isolated nucleic acid molecule encoding the polypeptide of SEQ ID NO: 1 or 4 or 6 in claims 3 and 6. The current claim language thus encompasses a large number of the polynucleotide variants that are both structurally and functionally deviated from the disclosed full-length polynucleotides SEQ ID NO: 2, 5 and 7. One of skill in the art would reasonably conclude that the disclosure insufficiently provides written description regarding the biological activity or role(s) of the claimed polynucleotide variants. The specification provides insufficient teaching, guidance, and no working examples as to make and use of the variant molecules in pharmacology, e.g., as a marker gene for investigating tissue-specific and estrogen-receptor specific agonists or antagonists (see page 7, the first paragraph).

Applicant has disclosed only nucleic acid of SEQ ID NOs: 2, 3, 5 and 7; therefore, the skilled artisan cannot envision all the contemplated nucleic acid sequence possibilities recited in the instant claims. Consequently, conception cannot be achieved until a representative description of the structural and functional properties of the claimed invention has occurred, regardless of the complexity or simplicity of the method. Adequate written description requires more than a mere statement that it is part of the invention. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC1993).

The Guidelines for the Examination of Patent Application Under the 35 U.S.C.112, ¶ 1"Written Description" Requirement make clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient

to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 20001, see especially page 1106 3rd column).

One of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of the variants to describe the immunogenic fragments. Thus, Applicant was not in possession of the pharmaceutical composition comprising the claimed protein and the claimed immunogenic fragment. *See University of California v. Eli Lilly and co. 43 USPQ2d 1398.*

Applicant is directed to the Revised Interim Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

Claims of the instant application recite that an isolated polynucleotide that is at least 70 % identical or *similar* to full-length SEQ ID NO: 2 or 5 or 7. The claims as written have variations 1%-30% corresponding to 70% sequence identity to naturally occurring polynucleotides SEQ ID NOs: 2, 3, 5, and 7. Such recitations do not require that the full length of the nucleotide sequence of SEQ ID NO: 2, or 5 or 7 but rather encompasses numerous nucleotide sequences selected from either the full-length polynucleotides mentioned *supra*. In consideration the claim language "at least 70% similar to", the variations of claimed polynucleotides would be unpredictable due to the term "similar" which permits encompassment of even larger quantity of the variants thereof.

The specification does not describe the consequence of the variants and their use as maker genes for investigating tissue-specific and estrogen receptor-specific agonist and antagonist, and fails to describe the common attributes or characteristics that identify any

polynucleotide variants. The specification is thus insufficient to enable skilled artisan to practice the invention as broadly claimed without an undue amount of experimentation.

Making changes up to 30%, or, even more than 30% (due to the claim recitation "*70% similar to*") of a polypeptide sequence does not provide maintaining the same three dimensional structure as the 100% identity over the full length of polynucleotide SEQ ID NO: 2 or 5 or 7. Thus, the instant claim language appears to encompass all possible subsequences of polynucleotide and polypeptide without regarding structure-function relationship. This would create numerous variants (sequences) that are unpredictable on both structure and function. The claims of the present invention also recite the hybridization condition for a polynucleotide without setting forth a particular condition thereof. In light of the fact that possibility of a polynucleotide anneals to the known polynucleotide molecule under undefined hybridization condition would be enormous and unpredictable, quantity of the variants brought about by the current claim language would be far beyond what can be predicted.

Description of invention's reduction to practice, unaccompanied by any meaningful, distinguishing characteristics of evolved the peptide variants, i.e., a polynucleotide that has 70% or more (variants) identical or similar to the claimed full-length molecules is insufficient to satisfy written description requirement of 35 U.S.C. §112, since inventors could have provided description of the variants or representative thereof of SEQ ID NO: 2 or 5 or 7 polynucleotide, since actual reduction to practice may demonstrate possession of embodiment of invention, but it does not necessarily describe what invention is, and since, in context of present case, disclosure of manner in which invention was reduced to practice does not satisfy more fundamental written description requirement set forth in Section 112.

In consideration of the issued stated *supra*, the amount and level of experimentation needed is undue.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite in "at least about 70%" because the recitation "at least" is a narrower range than "about" which falls outside of this range. See also claims 2, 4 and 5. The dependent claims are also rejected,

Claim 4 is unclear as to the recitation "70% similar to a sequence" because "similar" does not set forth a definitive degree of comparing the claimed polynucleotide sequences. The phrase "similar to" in conjunction with "at least about 70%" render the claim even indefinite because such the claim language appears to set "±" parameter on both ends of the %.

Claims 7 and 8 recite "stringent wash condition"; such the recitation is ambiguous because hybridization condition is widely varied with different characteristics of nucleotide sequences, e.g., length, GC% and secondary structure if any, and the specification does not define the condition. In the absence of a clear definition of the metes and bounds of this phrase it is unclear which conditions are actually claimed. It is suggested that Applicant amend the claims to recite a particular set of hybridization, such as those exemplified on page 22 of the specification, and wash conditions to overcome this rejection.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Wei Liu whose telephone number is (703) 306-3483.

The examiner can normally be reached from 9:00 a.m. to 5:00 p.m. on weekdays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Christopher Low, can be reached on 703 308-2923. The fax phone number for the organization where this application or proceeding is assigned is 703 308-4242 or 703 872-9306 (official) or 703 872-9307 (after final). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-4700.

KAREN COCHRANE CARLSON, PH.D
PRIMARY EXAMINER

Samuel Wei Liu, Ph.D.

March 7, 2003